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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,581

10/28/2005

Alan John Hopper

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EXAMINER

CULBERT, ROBERTS P

ART UNIT

PAPER NUMBER

1763

MAIL DATE

DELIVERY MODE

06/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/528,581

Applicant(s)

HOPPER ET AL.

Examiner

Roberts Culbert

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1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17 is/are allowed.
- 6) ☒ Claim(s) 18 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/21/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,315,985 to Castellani.**

Regarding Claim 18, it is noted that although product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). In this case the product structure implied by the process steps is simply a printed circuit board having electrically conductive circuitry on a dielectric substrate.

Regarding Claims 18 and 19, electrically conductive circuitry on a dielectric substrate is notoriously old and well known in the circuit board art. For example, Castellani et al. teach (see Figures 1a-1g) electrically conductive circuitry (4, 6, 10) on a dielectric substrate (2).

### ***Allowable Subject Matter***

Claims 1-17 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach or render obvious a process for making an electronic device which comprises applying a non-

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aqueous plate-resistant ink by ink jet printing to selected areas of a dielectric substrate, optionally laminated with an electrically conductive metal(s), exposing the plate resistant ink to actinic and/or particle beam radiation to effect polymerisation, adding one or more metal layers by electrolytic or electroless deposition, the upper layer of which is an etch-resistant metal(s), removing the polymerised plate-resistant ink with alkali and finally removing the electrically conductive metal(s) which are optionally directly laminated to the dielectric substrate and not protected by an upper layer of etch-resistant metal(s) by chemical etching wherein the plate-resistant ink is substantially solvent-free and comprises: 30 to 90 parts acrylate functional monomers free from acid groups comprising mono-or higher functionality wherein 5 to 95% by weight are mono-functional monomers; 1 to 30 parts acrylate functional monomer containing one or more acid groups; 0 to 20 parts polymer or prepolymer; 0 to 20 parts radical initiator; 0 to 5 parts colorant; 0 to 5 parts surfactant; and where the ink has a viscosity of not greater than 30 cPs (mPa.s) at 40°C and all parts are by weight as recited in Claim 1.

U.S. Patent 5,721,007 to Lynch et al. which is considered to represent the relevant state of the art, discloses a process comprising applying a non-aqueous plate-resistant ink by ink jet printing to selected areas of a dielectric substrate, exposing the plate-resistant ink to actinic radiation to effect polymerisation, adding a metal layer by electrolytic deposition, the upper layer being an etch-resistant metal, and removing the polymerised plate-resistant ink with alkali.

Claim 1 is distinguished over this known process in that the plate-resistant ink is solvent-free, has a viscosity not greater than 30 mPa.s at 40°C and comprises:

A) 30 to 90 parts acrylate functional monomers free from acid groups comprising mono- or higher functionality wherein 5 to 95% by weight are mono-functional monomers; and

B) 1 to 30 parts acrylate functional monomer containing one or more acid groups, all parts by weight.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



R. Culbert  
Examiner  
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